CLAIMS

1. A chip resistor comprising:

a resistive element including a flat surface;

an insulation layer provided in the flat surface; and

a plurality of electrodes provided in the flat surface;

wherein the electrodes make contact with the insulation layer and are spaced from each other via the insulation layer.

2. The chip resistor according to Claim 1, wherein the insulation layer is formed of a resin material by thick-film printing.

3. The chip resistor according to Claim 1, wherein the resistive element has another surface facing away from the flat surface, said another surface being formed with an electrically insulating overcoat layer.

4. The chip resistor according to Claim 3, wherein the overcoat layer and the insulation layer are of the same material.

5. The chip resistor according to Claim 1, wherein the electrodes have a greater thickness than the insulation layer.

6. The chip resistor according to Claim 1, wherein the electrodes are formed with a solder layer thereon.

7. A method of making a chip resistor, comprising:

a step of forming an insulating pattern on an electrically resistive plate;

a step of forming an electrical conductor in contact with the insulating pattern, on the plate; and

a step of dividing the plate into a plurality of chips,

wherein each of the chips includes at least part of the insulating pattern and at least part of the conductor.

8. The method according to Claim 7, wherein the plate is a flat metal plate having a uniform thickness, the insulating pattern being formed by thick-film printing, the electrical conductor being formed by plating.

9. The method according to Claim 7, further comprising a step of forming an electrically insulating overcoat layer on the plate before dividing the plate.

10. The method according to Claim 7, wherein the plate is divided by blanking with a single punch die.

11. A chip resistor comprising:

a chip-like resistive element including an upper surface and a back surface facing away from each other in a direction of thickness;

a plurality of electrodes provided in the resistive element; and

an insulation layer formed in at least one of the upper surface and the back surface of the resistive element, between the electrodes;

wherein the resistive element includes a plurality of upright surfaces extending in the direction of thickness, each of the electrodes being provided correspondingly in one of the upright surfaces.

12. The resistor according to Claim 11, wherein the resistive element includes a plurality of recesses formed by the upright surfaces.

13. The resistor according to Claim 12, wherein the recesses are filled by the electrodes.

14. The resistor according to Claim 11, wherein the resistive element includes a plurality of through holes defined by the upright surfaces.

15. The resistor according to Claim 14, wherein the through holes are filled by the electrodes.

16. The resistor according to Claim 11, wherein the electrodes extend in the direction of thickness, beyond the insulation layer.

17. The resistor according to Claim 11, wherein each of the electrodes is formed with a solder layer.

18. A method of making a chip resistor, comprising:

a step of forming an insulation layer on an electrically resistive plate;

a step of forming a plurality of through holes in the plate;

a step of plating a conductor in each of the through holes; and

a step of dividing the plate into a plurality of chips.

19. The method according to Claim 18, wherein the through holes are divided in the step of dividing the plate.

20. The method according to Claim 18, wherein the through holes are formed by punching.